

A Market Variable Model of Demand Estimation for Entrepreneurs

By

Mary Allender

**School of Business
University of Portland
5000 N. Willamette Blvd.
Portland, OR 97203
Email: allender@up.edu
Phone: (503) 943-7224
Fax: (503) 943-8041**

Track: Applied Issues in New Business Ventures

ABSTRACT

One of the most important and often daunting tasks facing an entrepreneur is estimating demand for its product. Although driven by a crucial passion to succeed, the entrepreneur is indeed more likely to experience success if he can accurately assess his market upon entry into the industry. This paper examines the market variables that will affect demand for the entrepreneur's product and how they might be assessed. These variables are grouped into those market variables the entrepreneur is likely to know with a high degree of certainty and those the entrepreneur is likely to know with less certainty.

The relationship between entrepreneurs and their customers is crucial to the success of the entrepreneur as well as the role entrepreneurs play in market economies. For Schumpeter (1934,1942) the entrepreneur drives the capitalist economic process. The entrepreneur makes quantum changes in an industry in keeping with the tradition of Henry Ford and Phil Knight (Dixon, 2000). Entrepreneurs revolutionize consumer society and drive demand. As leaders in their markets, they can accurately estimate demand and effectively establish a profitable pricing policy. "...there follows a period of price determination solely on the basis of direct valuation and without much regard to costs." (Schumpeter, 1934, p. 135). Such an entrepreneur can charge a price based on the customer's perceived value added of its product. Colvin, Slevin, and Heeley (2000) reiterate this view.

What about the entrepreneurs we might consider marginal in Schumpeter's model? These are sometimes referred to as followers rather than pioneers. Many dot-com startups fit this description as do "lifestyle" entrepreneurs such as the person who opens a neighborhood restaurant or hardware store. These entrepreneurs don't revolutionize consumer society and thus don't create their own demand, In fact, they are largely beholden to the market and as Bygrave (1998) and Fuchs, Mifflin, Miller, and Whitney (2000) note, identifying a market and projecting sales are critically important tasks for the

entrepreneur. As Porter discusses (1979, 1980) a reliable and accurate forecast of demand is integral to a successful pricing strategy. However, the literature is fairly limited on the subject of how an entrepreneur should go about projecting sales. Bygrave (1998) suggests that new ventures estimate demand based on historical information for the industry or other startups. This may be a good basis for estimating sales but it fails to capture all the detailed nuances of a particular industry.

This paper develops a framework for estimating demand for the entrepreneur. Its specific contribution is to lay a conceptual foundation for evaluating potential demand in an industry. The first part of the paper examines demand in terms of variables the entrepreneur can be expected to know with a high degree of certainty. Second, the framework is extended to include variables the entrepreneur will likely know with a lower degree of certainty. The last part of the paper offers conclusions and suggestions for future research.

Market Variables Known by the Entrepreneur With a High Degree of Certainty

Own Costs – The entrepreneur will be able to estimate its own per unit and marginal costs of production. This will allow the firm to establish a benchmark price markup over costs as part of developing a comprehensive pricing strategy.

Competition – Marketing research can help the entrepreneur properly define its market in terms of competitors. The entrepreneur wants to identify competitors as those who produce direct and indirect substitutes in the same geographic market. In some cases this will be relatively easy such as identifying competitors for the entrepreneur who opens a neighborhood pizza shop. In other cases, identifying a cohesive set of competitors may be

more problematic and thus subject to more uncertainty. Dot-com services may fall into this category.

Market Demand – If the firm is a true pioneer in Schumpeter’s sense, then it will be creating a new market. However, for typical entrepreneurs, the market will already exist. The firm will be able to get a reliable estimate of market demand for its product based on current sales for incumbents who are its potential competitors.

Market Price – The market price will be set by the incumbents. Like the entrepreneur’s own costs, the market price will provide a benchmark for the entrepreneur as it develops its pricing strategy.

These variables provide the entrepreneur with the information to construct an initial demand function based on market variables it will know with a fairly high degree of certainty. Figure 1 illustrates this idea.

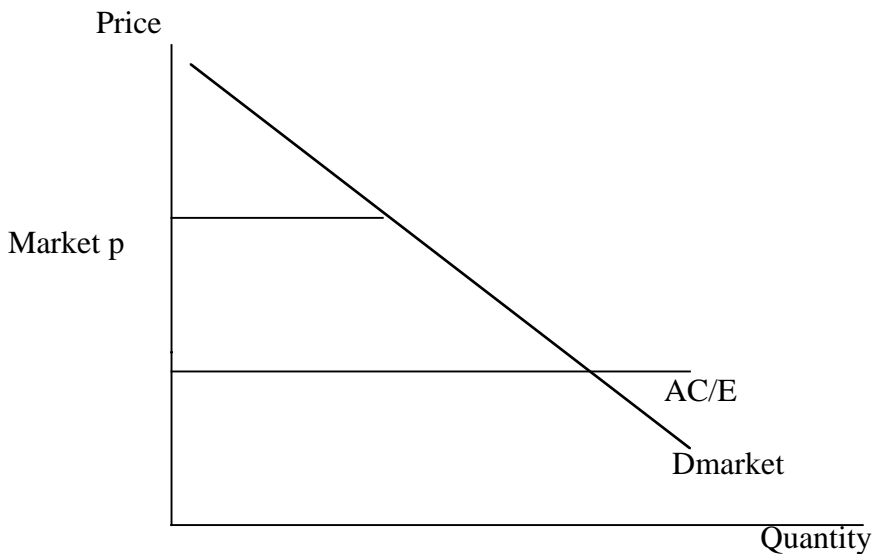


Figure 1

The entrepreneur estimates D_{market} as the market demand in the industry it wishes to enter. It identifies AC/E as its own per unit costs of production and market price as the

price being charged by the incumbents. The portion of the demand curve to the left above point Z represents consumers currently being served by the incumbents because they are willing to pay the market price or more. The portion to the right below point Z represents customers more readily available to the entrepreneur because they are potentially part of the market but are not purchasing from the incumbent. Thus, this initial model of demand gives us a simple application. The entrepreneur may choose to price below the market price as a quick entry pricing strategy.

Market Variables Known by the Entrepreneur With a Low Degree of Certainty

Consumer Response – The response of consumers to the entrepreneur's product will depend on the price it charges, consumer tastes, the availability of substitute offerings, and the impact its marketing effort has on consumers. The availability of substitute products was discussed above as a market variable the entrepreneur will be able to assess with a higher degree of certainty. However, consumer tastes can be fickle and difficult to predict. One has only to think of the Ford Edsel as an example of unanticipated failure with consumers or the success of Ben and Jerry's to appreciate the difficulty of predicting consumer tastes. Furthermore, consumer choices depend also on current income and expectations of future income, so changes in macroeconomic variables add a degree of uncertainty to consumer demand.

The entrepreneur's marketing effort will tend, other things equal, to have a positive influence on demand, Indeed, that is the theory behind marketing but again, the potential fruits of those efforts are hard to predict. While test marketing and focus groups increase the degree of certainty with which firms can assess the impact of its marketing efforts, smaller entrepreneurs don't often employ these tactics.

Two points are important to mention. First, the variables described as ones the entrepreneur is likely to know with a high degree of certainty are going to be immediately known to the entrepreneur because they define the current market environment. On the other hand, the impact of marketing efforts and consumer tastes will emerge over time as the entrepreneur enters and becomes part of the market. Second, price is both an exogenous and an endogenous variable for the entrepreneur. The market price serves to establish a benchmark demand curve for the entrepreneur and as such, is exogenous to the entrepreneur's strategy. However, over the longer term, the entrepreneur's pricing strategy can be viewed as endogenous as the firm adjusts strategy to the market variables they can predict with a lower degree of certainty. In general then, the greater is consumer response to the entrepreneur's product, the greater is demand.

The Incumbent's Reaction to the Entrepreneur - The theory of oligopoly is replete with models showing the impact on a firm of making various assumptions about rival's reactions to its strategies. From the early models of Cournot (1897) to modern game theoretic models (Shapiro, 1989), the literature shows that rival reactions are uncertain and predicting them is critically important to the entrepreneur's successful market strategies. An incumbent rival may react to the entrepreneur in terms of both its price and non-price strategies. The less rivals respond to the entrepreneur's strategies by matching them, the more successful the entrepreneur will be. The entrepreneur's estimated demand will tend to shift right while greater rival reactions will compromise this effect.

The Emergence of New Entrepreneurs - If an entrepreneur is following a consumer taste trend, industry profits are likely to attract other entrants. Consider the gourmet ice-cream industry. Arguably, Ben and Jerry's identified this segment of the market first in 1978.

They were followed by a plethora of national and local gourmet brands which theoretically, will continue until profits have been bid to zero. The craft beer and gourmet coffee industries showed similar growth patterns. The greater the extent to which other entrants follow the entrepreneur, the less will be any rightward shift in its demand function.

The Economy - When the economy is growing with moderate price inflation and low interest rates, consumer demand grows. Such economic growth as is occurring currently, allows the entrepreneur a more positive estimate of demand.

Random Factors - Random factors such as a change in the business laws facing the entrepreneur can be adverse or favorable in their effect on demand for the entrepreneur.

Figures 2 and 3 illustrate how these five variables will impact the entrepreneur's assessment of its demand function and sales forecast.

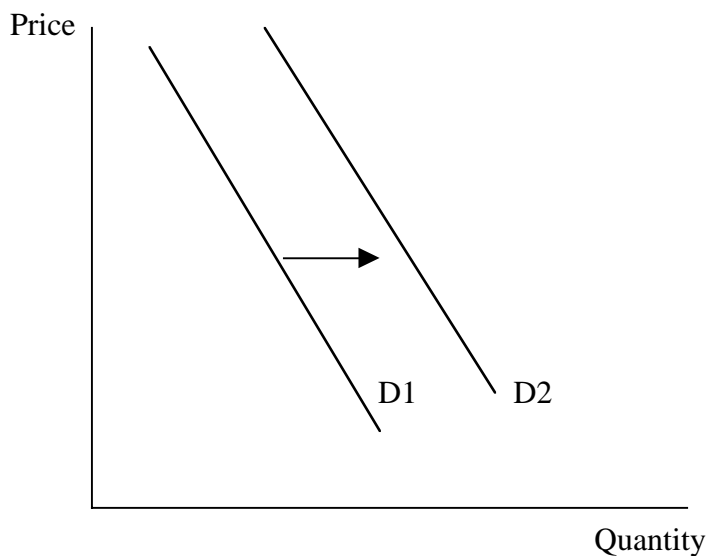


Figure 2

Figure 2 illustrates that for any given market price, the impact of the variables subject to a higher degree of uncertainty will be to shift demand to the right or left depending on

whether their effect is favorable or adverse. For example, if consumer response to the entrepreneur's offering is favorable, estimated demand will shift right from D1 to D2. Similarly, if the incumbent's respond to the entrepreneur with an aggressive strategy of matching the effort, estimated demand will shift left from D1. In general, the greater the degree of uncertainty in the variables discussed above, the more volatile demand will be.

Figure 3 illustrates how the market variables subject to a higher degree of uncertainty can affect the entrepreneur's estimate of its elasticity of demand.

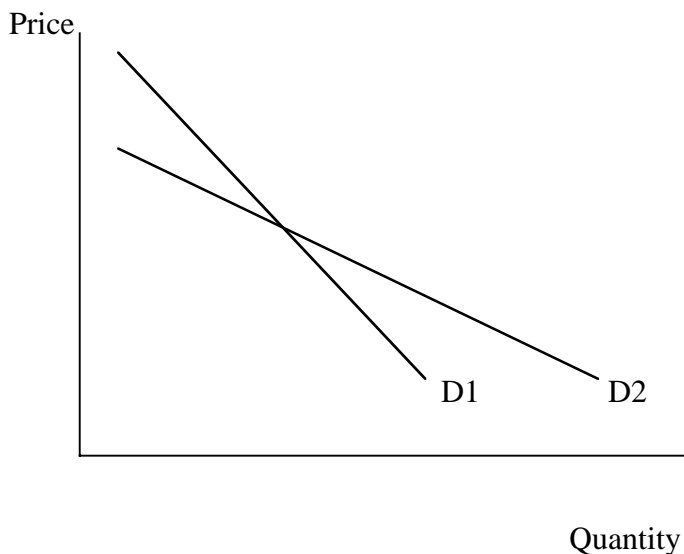


Figure 3

Elasticity measures consumer responsiveness to changes in the price of the product and is primarily affected by the availability of substitutes. The existence of few competitors will reduce elasticity of demand as can a successful marketing effort by reducing the perception of substitutability for a particular product. This in turn reduces consumer responsiveness to price changes as illustrated by demand function D1 compared to D2. Thus, D1 might represent demand for an entrepreneur that may have few competitors or executes a successful marketing campaign. Elasticity is an important factor in the

formulation of a pricing strategy. A less elastic demand function such as D1 allows the entrepreneur to set a higher price.

Applications in Further Research

The model developed in this paper suggests at least three applications for further research. First, industries might be categorized into types with specific demand conditions analyzed for each one. This would allow the model to be applied with more detail and specificity to each industry. Second, the model could be used to develop pricing strategies based on each industry and the type of demand structure relevant to each. Pricing strategy follows naturally from a discussion of estimating demand. Finally, the model could be applied empirically. Industry statistics are readily available that would allow for actual estimation of demand for a specific industry based on the variables specified in the model.

Conclusion

This paper develops a framework for entrepreneurs to estimate a demand function for themselves before they enter an industry. Several market variables are identified as having a role in the estimation of demand. These variables are divided into two categories; variables the entrepreneur is likely to know with a high degree of certainty and variables the entrepreneur is likely to know with a lower degree of certainty. Each variable is discussed in terms of its impact on estimating demand and subsequent pricing strategy. The paper concludes with a brief discussion of applications for further research.

REFERENCES

Bygrave, William. *The Portable MBA in Entrepreneurship*, 1998, 2d ed., Wiley

Colvin, Jeffrey, Dennis Slevin, Michael Heeley, "Pioneers and Followers: Competitive Tactics, Environment, and Firm Growth", *Journal of Business Venturing*, March 2000.

Cournot, A. "On the Competition of Producers," Ch. 7 in *Researches into The Mathematical Principles of the Theory of Wealth*, New York: Macmillan, 1897.

Dixon, Donald, "Schumpeter – 50 years later, *Journal of Macromarketing*, 20,1, June 2000.

Fuchs, Peter, Kenneth Mifflin, Danny Miller, John Whitney, "Strategic Integration: Competing in the Age of Capabilities," *California Management Review*, 42,3, Spring 2000.

Porter, Michael. *Competitive Strategy: Techniques for Analyzing Industries and Competitors*. 1980, Free Press.

Shapiro, C. "Theories of Oligopoly," ch. 6 in Willig, R. and R. Schmalensee eds., *Handbook of Industrial Organization*, Amsterdam, North Holland, 1989.

Schumpeter, Joseph. *The Theory of Economic Development*, Harvard University Press, 1934.

Schumpeter, Joseph. *Capitalism, Socialism, and Democracy*. New York: Harper and Brothers, 1942.